







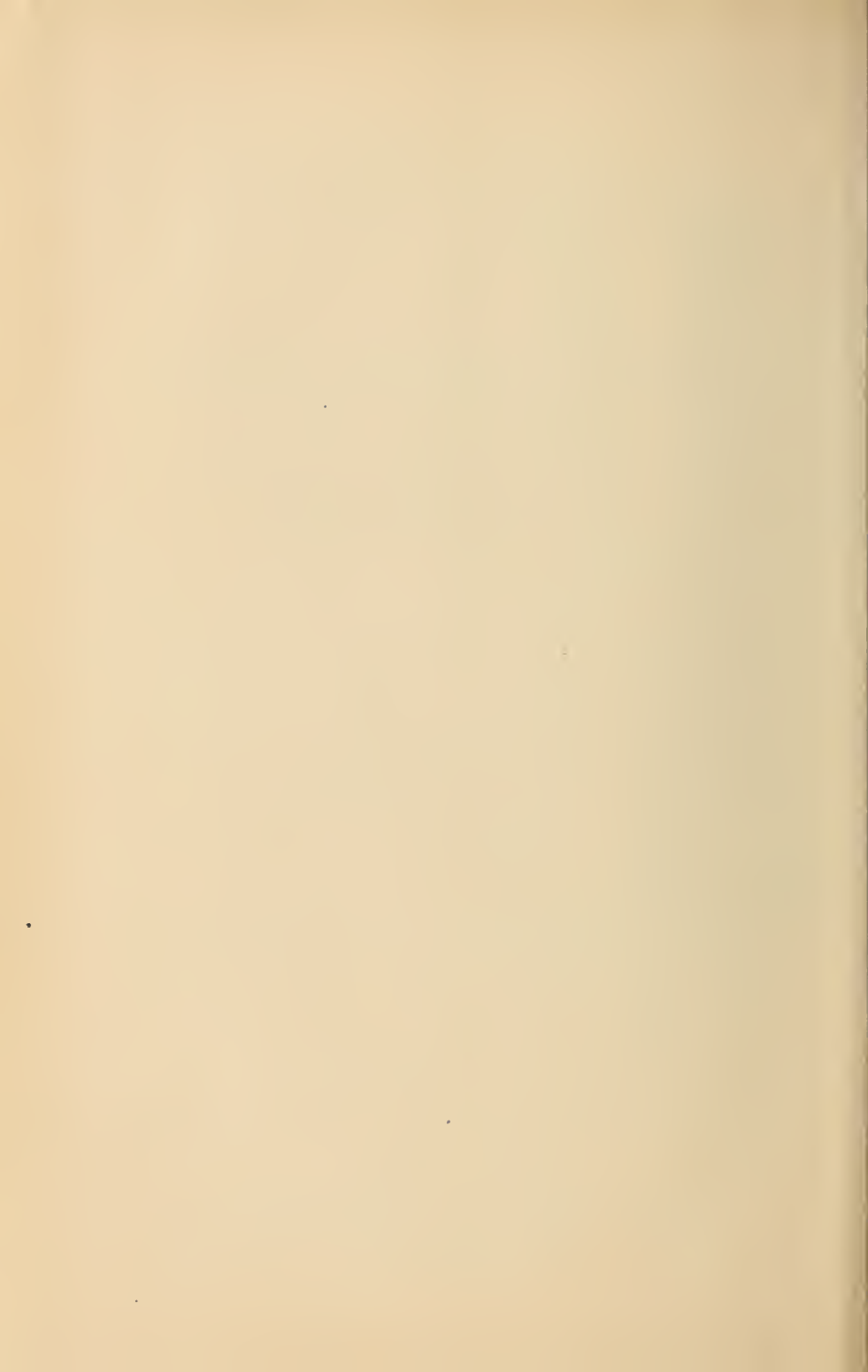
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THE
DIAGNOSIS AND TREATMENT
OF
JOINT DISEASES
IN
THEIR VARIOUS STAGES.

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THE DIAGNOSIS AND TREATMENT OF JOINT DISEASES IN THEIR VARIOUS STAGES.*

THE time allowed for the discussion of this subject will prevent the consideration of the minute anatomy of the various joints; but, in order to understand the general principles of treatment involved in the diseases which we shall discuss, it will be necessary to give a general outline of the structures embraced in the pathological changes.

And first, what are the component parts of a perfect joint? They are bone, cartilage, fibro-cartilage, ligaments, and synovial membrane. Some of the joints which we shall speak of, as for instance the articulations between the bodies of the vertebræ, have no synovial membrane. The varieties of synarthrosis are not included in this discussion.

The ends of bones composing joints have a thin shell of dense tissue, overlying a mass of cancellated structure which is exceedingly vascular, and it is owing to this anatomical structure that extravasation of blood in the extremities of

* Read before the British Medical Association at their last annual meeting.

bones can readily occur from concussion. The cartilages covering the ends of bone have neither blood vessels nor nerves that have yet been discovered, and live simply by imbibition or absorption of their nourishment from the rich supply of blood vessels in the cancellated structures beneath. Having, therefore, so little vitality, they easily undergo necrosis or degeneration. The synovial membrane is highly vascular, and hence easily excited to inflammatory action from various causes, particularly after sudden changes of temperature and after excessive motion.

The ligaments which hold the bones together are of a firm fibrous texture, closely attached to the periosteum, and are supplied with blood vessels, and are liable to be torn more or less extensively from their attachments by severe wrenching or straining.

Before proceeding to the subject of etiology, I wish to state that in my remarks I shall make no reference to syphilitic, rheumatic, or gouty arthritis, but shall confine myself to those diseases of the joints which have been generally called chronic, strumous, tuberculous, fungus articuli, exudation and gelatiniform softening, commonly called scrofulous diseases of the joints. This latter class of diseases is illustrated by the so-called strumous disease of the ankle-joint, white swelling of the knee-joint, hip-joint disease, and Pott's disease of the spine. All of these diseases have generally been considered to be dependent upon and caused by a constitutional dyscrasia. In proof of this, I would quote one of the most distinguished surgical authors of my own country, who says ("Transactions of the International Medical Congress," Philadelphia, Sept., 1876), in speaking of the etiology of morbus coxarius: "It can not arise in persons healthy in other respects; there must be a constitutional vice as a predisposing cause. The body must be in a state of debility or feebleness. This is my belief, nay, my solemn conviction. . . . In the great majority of instances the affection is of spontaneous origin, and it is not necessary for a blow, or a fall, or any injury to produce the disease." Further along in the discussion he goes on to state: "The difference between Dr. Sayre and myself seems to be simply this: he says that hip-disease is almost

always of traumatic origin, and not necessarily connected with a vitiated constitution. I, and those who think with me, do not deny that injury may excite the disease; on the contrary, we confess that it frequently does so; but we maintain that the disease is always necessarily connected with a vitiated system." If this doctrine is true and the theory correct, I would simply ask why it is that so many patients, having recovered from hip-joint disease, are ever afterward perfectly well and sound? Why is it that simply having had hip-disease cures this constitutional taint? That this doctrine is not true, I am positive, and I base my opinion upon facts obtained from the study of many cases, where there was unquestionably disease of the hip-joint, some of them resulting in caries requiring exsection for the removal of the disease, after which the general health has been thoroughly restored, and many of them have become vigorous and robust, showing no taint of scrofula, struma, or any other constitutional vice. Many of the cases can be traced in their family history for generations back, without a single taint of struma, scrofula, or any other debilitating affection. A case of this kind, most marked, was placed under my treatment by Sir James Paget and Mr. William Adams, with undoubted disease of the hip-joint of many months' standing. The patient has now recovered, without deformity, and with perfect motion. In this particular case the family history, for several generations, is remarkable for the longevity and robustness of its members. In no branch of the family is there a trace of consumption, except by intermarriage. These facts are obtained from the published book of the "Landed Gentry of Ireland," and hence are reliable. One positively ascertained fact of this kind must necessarily be accepted as a successful refutation of any or all theories in opposition to it. I have records of many cases precisely similar to the one just referred to, but the accuracy of their family history for so many generations can not be vouched for, as in the case referred to, because in my country the genealogical record of families is not so accurately preserved.

Struma, scrofula, or a vitiated condition of the general system, from whatever cause, is the modifying influence of

the disease in the joint, but not the cause of the disease. The disease itself is the result of traumatism, generally so slight as to be unobserved at the time the injury is received.

If the traumatism be a concussion, an extravasation of blood occurs, which, not being observed, undergoes degenerative changes, and thus becomes a foreign body; or the cartilage may be slightly loosened from its attachment, and, having naturally but feeble vitality, becomes necrotic, and it again is a foreign body; or a severe wrench, tearing from their attachment some of the fibrous tissues, causing an exudation of serum, or blood, which, not being absorbed for want of sufficiently prolonged rest, undergoes degenerative changes, and thus becomes a foreign body.

In either of the instances of traumatism we have just described, we have the nidus, or the starting-point, of a chronic inflammation. This is particularly the case if the injury be very slight, so slight, in fact, as not to attract observation, because then the proper treatment for restoration is not applied at the time the injury is received; if it were, in the great majority of instances these cases would result in speedy recovery. If the accident were more severe, sufficient to excite an acute inflammation, it would attract attention, and by proper treatment would probably result in an early recovery; but, being so slight as not to be noticed, motion and exercise are continued until serious damaging changes have taken place. Now, if the individual thus injured be in a robust, vigorous condition, and of healthy parentage, he may have recuperative power sufficient, with proper treatment, to restore him to health without suffering any constitutional disturbance. But even this person in robust health, if the injury be so slight as not to attract attention, his usual avocations and exercise being continued, instead of repair taking place, degenerative changes are instituted, and chronicity of the disease is the consequence. The degenerative processes going on in and about the joint thus slightly injured produce constitutional disturbances before the local manifestations are such as to attract attention; so that, when the medical attendant detects the local trouble, he finds it also connected with a constitutional dyscrasia, and the local manifestations are, to

his mind, the result of this constitutional condition, instead of which, the constitutional condition observed by him is the result of long-continued disease which had been neglected and unsuspected.

Take, for instance, diseases of the spine; long before there is any deformity that attracts attention, the patient has suffered from neuralgic pains in different parts of the body distant from the spine, and generally is not brought for treatment until the deformity is conspicuous, which could not possibly occur until partial absorption of the bodies of the vertebræ had taken place, an evidence that the disease had existed a long time before medical advice was sought. So, too, with disease of the hip-joint; months or even years elapse before medical advice is sought for the treatment of the hip, attention having been paid even by medical attendants to the knee, which they have covered with iodine and narcotic poultices. This serves as an illustration of the principle which I wish to inculcate. Now, if the person thus slightly injured be of a strumous diathesis, either inherited or acquired, or if his system be vitiated, enfeebled, or broken down from any cause, the degenerative changes in the joint involved will go on with more rapidity and lead to more disastrous results than if he had been in a healthy condition at the time of the accident. But even the most decidedly strumous, or scrofulous, must receive some local injury to the point where these destructive changes manifest themselves, for the scrofula, or struma, the constitutional dyscrasia, by whatever name you may call it, involves the entire system—muscular, vascular, nervous, and osseous; and that there should be degenerative changes taking place in one or other particular joint of the body must necessarily be the result of some exciting cause impinged upon the point involved. If scrofula were the essential cause of this disease, as stated by the author above quoted, and almost all of our surgical authors, why is it that so many millions of children with scrofula die from other causes without developing any joint disease?

No man admits more strongly than myself the modifying influence of the strumous or scrofulous diathesis, but that this condition does not produce disease of any joint “spontaneous-

ly," or without some exciting cause, is my firm conviction. It requires the exciting cause of traumatism to give rise to the local manifestations of this dyscrasia.

Before proceeding further, let us try and come to some understanding as to what is meant by the term "scrofula." If the question were asked this learned body, probably there would be as many answers as there are members present. There is a peculiar condition of the system with enlarged glands, weak muscular fiber, sore eyes, thick lips, chronic suppuration from the ears, all the evidences of mal-nutrition, which, by common consent, we all include under the term scrofula. Some assert that this ill-defined condition must necessarily be inherited; that it is impossible for it to be acquired. If this doctrine were true, it would necessarily involve the tracing back of the scrofulous constitution through the generations of the past ages to Adam, the founder of the human race, and consequently every human being, both male and female, would necessarily be tainted with this inherited vice.

The probability of this state of affairs is too absurd for belief, and hence I maintain that this general constitutional dyscrasia which we have by common consent called scrofula, for want of a better term, can be, and frequently is, acquired by persons with a healthy ancestry, by living in violation of hygienic laws. Bad air, bad food, insufficient amount of nutrition and clothing, sleeping in damp, badly ventilated rooms, want of cleanliness, and the frequent intermarriage of persons living under these deteriorating influences, will produce a condition which can not be in any way distinguished from that which has generally been recognized as inherited scrofula. It will therefore be seen that this condition of the system, which has by common consent been termed "scrofulous," can be created by living in violation of the laws of health.

That this condition, no matter how produced, whether inherited or acquired, necessarily modifies any disease or accident from which the patient may be suffering, all must, I think, admit.

Take the athlete or pugilist who is, as you call it in this country, in the condition of "perfect form." He receives in-

juries, severe blows, wrenches, strains, or contusions, frequently with but slight extravasations of blood or none at all, his tissues being in such a condition that the vessels do not rupture; but if the vessels do rupture and blood be extravasated, it is absorbed in a short space of time before degenerative changes have taken place. In this condition of maximum health, the reparative processes take place instead of the degenerative. Now, this same athlete or pugilist, by leading a different mode of life—frequent debauches, imprudent diet, want of his accustomed exercise, and a vicious mode of life, may bring his previously splendid constitution into exactly that condition which has generally been understood as scrofulous. When in this latter condition, the same blows or contusions which he could before resist without difficulty now terminate in serious constitutional disturbances.

Some authors have attempted to describe these diseases as chronic, as if the simple element of time had anything to do with the nature of the disease. Most of these cases are chronic, owing to the simple reason of their feeble origin, the traumatism being so slight as to excite but very feeble disturbed action.

Had a more severe injury been sustained, the whole trouble would have been rapidly developed, and thus gone through its various stages with greater rapidity, because a larger number of elements would have been engaged in the destructive processes. In either case it is simply irritation producing inflammation and its necessary consequences, only differing in degree. Take the poor man unaided and alone, with his wheelbarrow and shovel, who digs out the cellar, lays the foundation, and constructs his humble dwelling without assistance. He would certainly be a long time in doing it. If as many workmen as could advantageously have been employed had aided him in digging his cellar and constructing his house, the work would have been accomplished in a much shorter period of time.

The rapidity of the construction of the house would depend upon the amount of force occupied in the work. So with these diseases, if but few elements are involved in the structural changes, more time will elapse before they will

have accomplished their ultimate destructive metamorphoses than if a greater injury had been sustained; showing, therefore, that chronicity has nothing to do with the character of the disease.

Whenever these injuries occur, they produce an abnormal condition of the system which we term "irritation," which gives rise to muscular contractions, thereby limiting the movements of the joint and parts involved, and causing characteristic changes in the form and position of the body, or the joint, or the limb involved. This peculiar muscular rigidity, which has been called reflex muscular contraction, persists and continues until the termination of the disease.

It is one of the essential elements, which aggravates the difficulty by causing undue pressure upon the parts inflamed, and leading to interstitial absorption and necrotic changes from diminution of the normal blood supply. The bed-sore on the heel, on the sacrum, and on the scapula, is the result of pressure interfering with the nutrition of the part.

So this reflex muscular contraction creates undue pressure upon parts brought in contact, and produces the same result. We hence see the absolute necessity of extension and counter-extension to overcome these reflex muscular contractions in the treatment of all chronic joint diseases. Great errors have been made in the application of this principle by continuing the extension beyond the point required, for then tension or traction is made upon the ligamentous structures that hold the joint together, and one of the most essential principles in the treatment of these cases becomes one of the most destructive agents. Consequently extension and counter-extension should only be carried to the point of relieving the diseased parts from pressure, which is to be decided by the comfort of the patient; and when this point is reached, the parts should be there secured. Rest, as perfect and complete as can be given to the parts involved in the disease, is the next most essential element of treatment. As the diseases of which we are speaking run a chronic course, and therefore a long time must elapse before recovery can take place, the rest obtained to the part involved by the confinement of the whole body to the bed, for months or years, as the case may be, is detrimental to the health

of the patient. If, therefore, we can by any mechanical contrivance or artificial means secure this perfect and complete rest to the involved joint or parts involved in the disease, and at the same time allow the patient to take free exercise in the open air, we have put him in the best condition to overcome the constitutional dyscrasia from which he is suffering, whether this constitutional condition was a scrofulous diathesis existing previous to the disease, or whether this similar condition had been caused by the disease. For by exercise the appetite is improved, the fresh air begets a healthy action in the system, which, together with a generous and nutritious diet, does more to eradicate the so-called scrofulous diathesis than any course of medication yet devised.

In some of the joints we have a capsular ligament; and in these there is a period in their treatment when motion becomes as essential an element of treatment as rest in the earlier stages of the disease. If this fact be disregarded in their treatment, the result will be ankylosis.

In the majority of cases of disease of the joints, if detected in their earlier stages, by carrying out the general principles of treatment above described they will generally recover, with little or no deformity and motion more or less complete. If the effusion be very great, in addition to rest, extension, and counter-extension, blisters, counter-irritation, and the internal administration of such remedies as will promote the absorption of the effused fluid are requisite.

Friction and elastic compression are also essential elements in the treatment of these diseases in certain stages. If the effused fluid has undergone degenerative metamorphosis into pus, it should be evacuated by means of the aspirator if possible. If, however, the contents can not escape by the aspirator, then the joint should be freely incised under the antiseptic spray, and carefully washed out and dressed according to the principles so admirably described by Mr. Lister.

If the disease has progressed to caries or necrosis before it comes under observation, it is frequently accompanied with one or more tortuous sinuses which afford but an insufficient exit to the morbid materials; and hence it is possible, by means of a free incision in the right direction, to facilitate the exit of

the discharges, and then, by following out the general instructions above given, repair may take place with more or less deformity and partial or complete ankylosis.

But in the latter condition of caries or necrosis, after having given the patient the benefit of the treatment just recommended, and the disease still goes on progressively, showing the extent of disease to be so great that the patient will probably succumb before the escape of the diseased bone could be effected by the slow process of exfoliation, then exsection and complete removal of the diseased parts is our only remedy. This, when done properly, and with proper after-treatment, will frequently yield the most satisfactory results. In the knee we have a splendid limb with ankylosis; in the ankle, hip, elbow, and wrist we frequently have fine results with but slight deformity and very nearly complete motion.



